

Service Manual

Portable Cassette Recorder with
Cue/Review Controls and Auto-Stop

Portable Cassette
RQ-2103



RQ-2103 MECHANISM SERIES

Specifications

Power requirement:	AC; 120V, 60 Hz (with Panasonic AC Adaptor RP-65A) Power consumption; 4W Battery; 6V (four "C" size dry batteries) Car battery; with optional Panasonic Car Adaptor RP-698
Motor:	Mechanical governor motor
Operation:	Pushbutton one-touch recording with Auto-Stop mechanism and lockable pause control
Jacks:	MIC; in (200 Ω —600 Ω), DC in (6V), MONITOR (8 Ω)
Speaker:	3" (8cm) PM dynamic speaker
Dimensions:	13.9cm(W) \times 5.2cm(H) \times 25cm(D) [5-1/2"(W) \times 2"(H) \times 10"(D)]
Weight:	930g (2 lbs), without batteries

Design and specifications are subject to change without notice.

Panasonic®

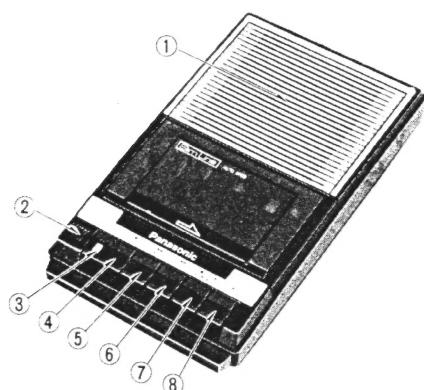
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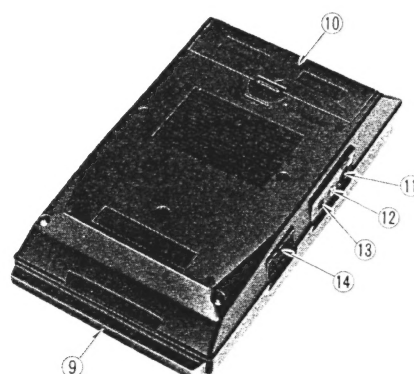
Panasonic Sales Company,
Division of Matsushita Electric
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Ave. 65 De Infantería, KM 9.7
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Carolina, Puerto Rico 00630

LOCATION OF CONTROLS AND COMPONENTS



- ① Built-in speaker
- ② Built-in microphone
- ③ Record button
- ④ Playback button
- ⑤ Rewind/review button

- ⑥ Fast forward/cue button
- ⑦ Stop/eject button
- ⑧ Pause button
- ⑨ Handle
- ⑩ Battery cover



- ⑪ DC IN jack
- ⑫ Monitor jack
- ⑬ Microphone jack
- ⑭ Volume control

DISASSEMBLY INSTRUCTIONS

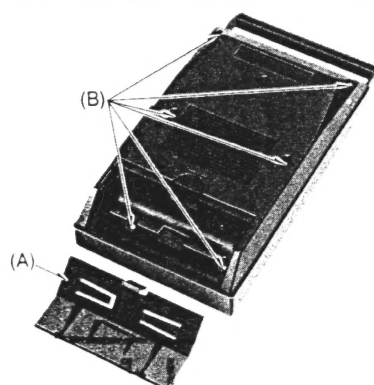


Fig.

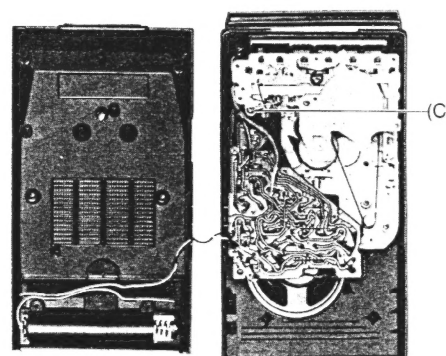
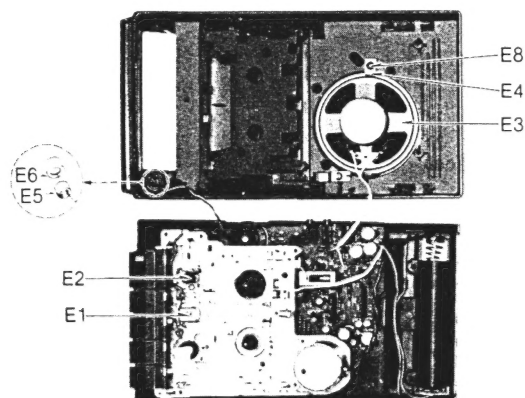


Fig. 2

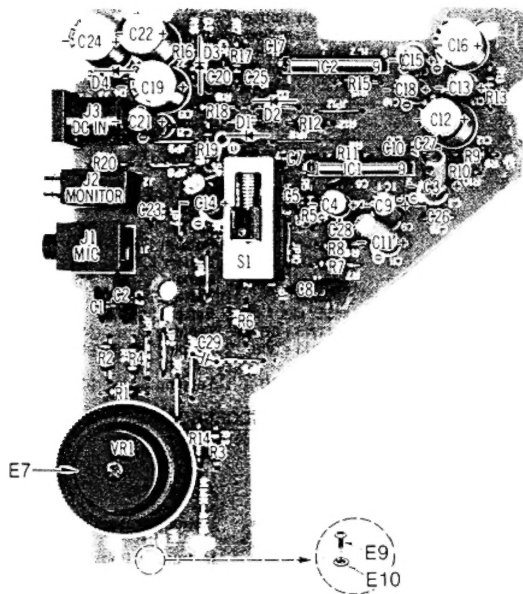
Ref. No.	Procedure	To remove —	Remove —	Shown in fig. —
1	1	Bottom case	<ul style="list-style-type: none"> • Battery cover(A) • 6 screws(B) 	1
2	1 → 2	P.C.B. and mechanism	<ul style="list-style-type: none"> • 1 screw(C) 	2

ELECTRICAL PARTS LOCATION

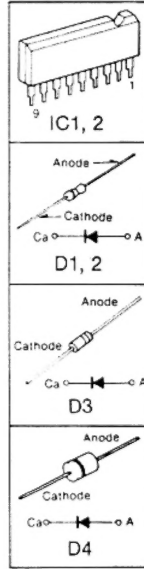


REPLACEMENT PARTS LIST

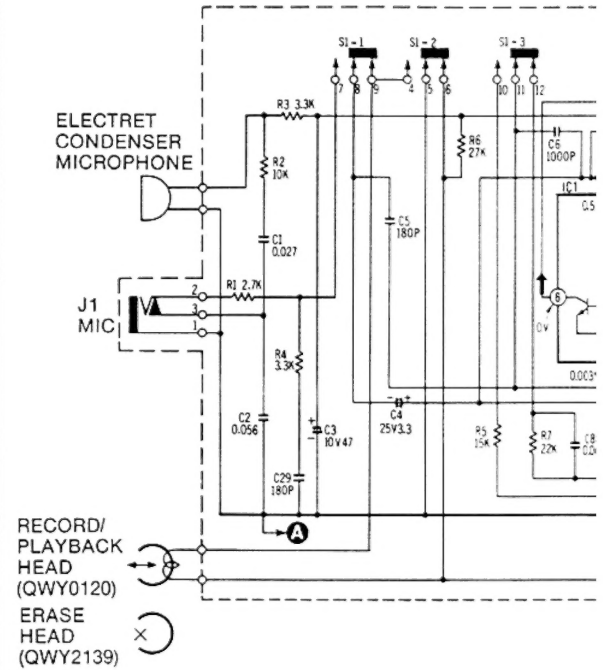
Ref. No.	Part No.	Part Name & Description
ELECTRICAL PARTS		
E 1	QWY0120	Playback Head
E 2	QWY2139	Erase Head
E 3	EAS8P28SE	Speaker
E 4	QKT1172	Angle (for Speaker)
E 5	WM0342P	Electret Condenser Microphone
E 6	QBG1616	MIC Cushion
E 7	QGTK0021	Volume Knob
E 8	XTN3 + 6B	Tapping Screw $\varnothing 3 \times 6$
E 9	XTN3 + 10B	Tapping Screw $\varnothing 3 \times 10$
E 10	XWG3	Washer



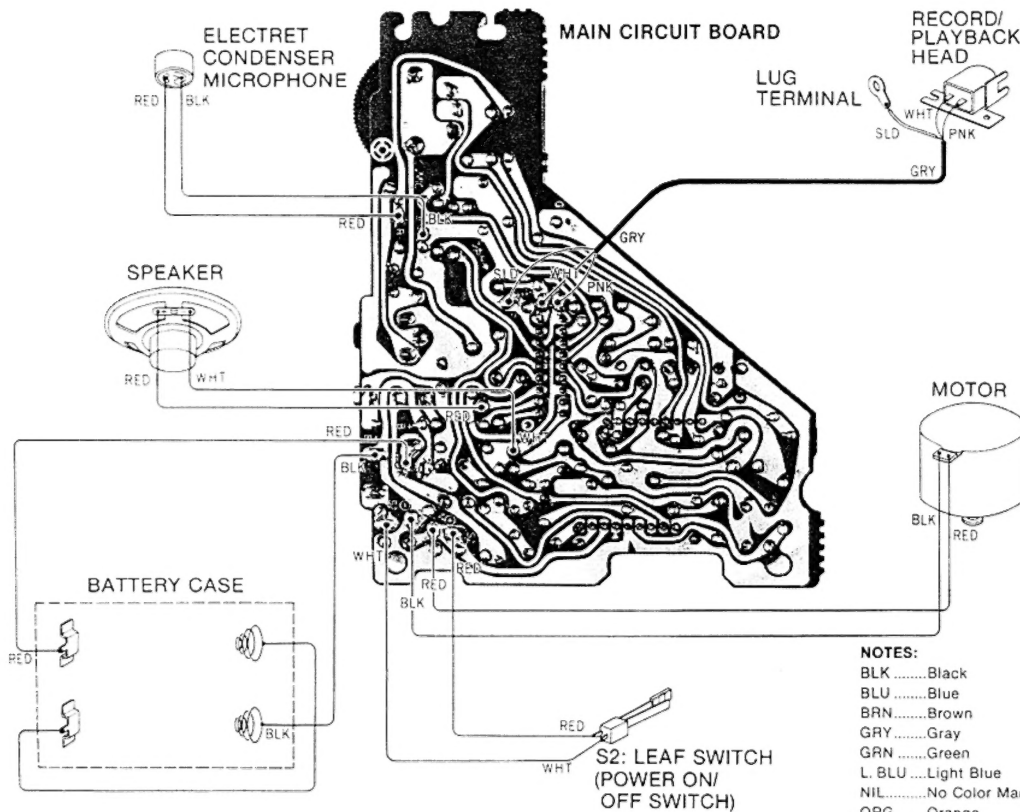
TERMINATIONS



SCHEMATIC DIAGRAM



WIRING CONNECTION DIAGRAM



SPECIFICATIONS

Recording bias current
Standard recording input level
Overall frequency response
Playback output level
* Use test tape: QZZCFM (315 Hz, 0 dB)

ELECTRICAL PART

NOTES: RESISTORS

ERD	Carbon
ERG	Metal-oxide
ERS	Metal-oxide
ERO	Metal-film
ERX	Metal-film
ERC	Fuse type metallic
ERD	Solid
ERF	Cement

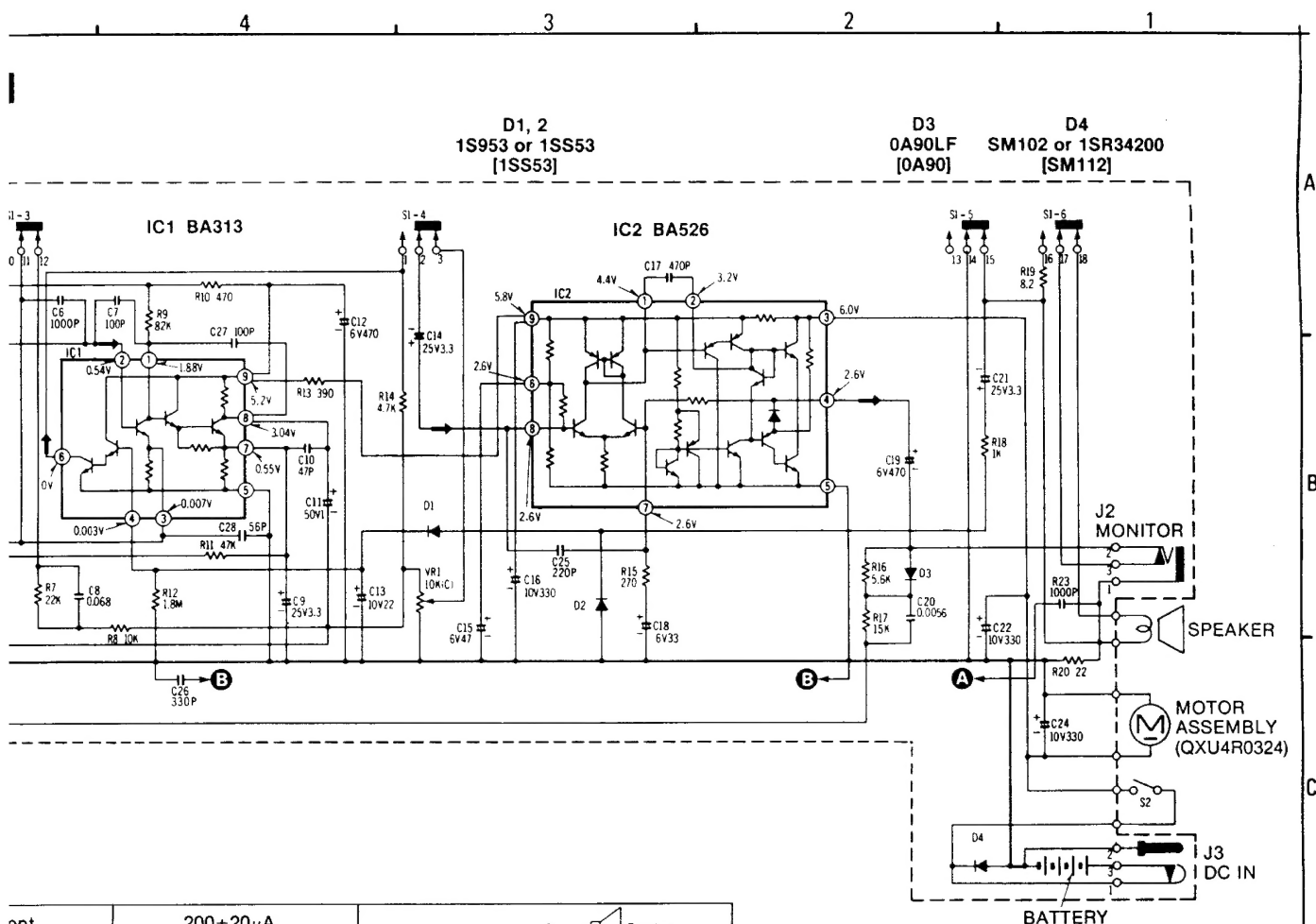
REPLACEMENT PARTS LIST

Ref. No.	Part No.	Ref. No.
RESISTORS		
R 1	ERD25TJ272	R 14
R 2	ERD25TJ103	R 15
R 3, 4	ERD25FJ332	R 16
R 5	ERD25TJ153	R 17
R 7	ERD25TJ223	R 18
R 8	ERD25TJ103	R 19
R 9	ERD25TJ823	R 20
R 10	ERD25FJ471	
R 11	ERD25TJ473	
R 12	ERD25TJ185	
R 13	ERD25FJ391	
		VARIABLES
		VR 1

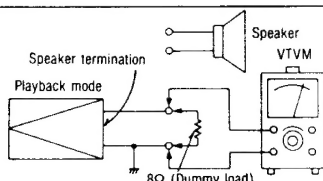
NOTES:

BLK	Black
BLU	Blue
BRN	Brown
GRY	Gray
GRN	Green
L. BLU	Light Blue
NIL	No Color Mark
ORG	Orange
PNK	Pink
RED	Red
SLD	Shield Wire
VLT	Violet
WHT	White
YEL	Yellow





ent	200±20μA
input level	MIC: -72±4dB at 1kHz
response	200Hz: -8±5dB 1kHz: 0dB 5kHz: -4±6dB
el	More than 1.7V
z, 0dB)	



Notes: 1. Cut the speaker lead wire.
2. Connect 8Ω instead of SP.

NOTES:

- S1-1—S1-6Record/playback select switch (shown in playback position).
- S2Power ON/OFF switch (shown in OFF position).
- VR1Volume control.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
- K = 1,000Ω, M = 1,000kΩ.
- Capacity are in microfarads (μF) unless specified otherwise.
- P = Pico-farads.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position.
- For measurement, use VTVM.
- Described schematic diagram are two types of numbers; the supply parts number and production parts number for diodes.
- One type number is used for supply parts number and production parts number which they are identical.
- e.g. D3
QA90LF—Production parts number
[OA90]—Supply parts number

The supply parts number is described alone in the replacement parts list.

This schematic diagram may be modified at any time with the development of new technology.

L PARTS LIST

on	CAPACITORS
-oxide	ECBACeramic
-oxide	ECG□Ceramic
-film	ECK□Ceramic
-film	ECC□Ceramic
-film	ECF□Ceramic
type metallic	ECQMPolyester film
ent	ECQEPolyester film
	ECQFPolypropylene

ECEDElectrolytic
ECEONNon polar electrolytic
ECQSPolystyrene
ECS□Tantalum
QCSTantalum

TS LIST

Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Part Name & Description
R 14	ERD25FJ472	CAPACITORS		C 13	ECEA1ES220	C 27	ECKD1H101KB	SWITCHES		
R 15	ERD25FJ271			C 14	ECEA50Z3R3	C 28	ECCD1H560K	S 1	QSS6212	Slide Switch
R 16	ERD25FJ562	C 1	ECFTD273MDY	C 15	ECEA1AS470	C 29	ECCD1H181K			(Record/Playback selector)
R 17	ERD25TJ153	C 2	ECFDD563MZY	C 16	ECEA1ES331	DIODES & RECTIFIERS		S 2	QSB0170	Leaf Switch
R 18	ERD25FJ102	C 3	ECEA1AS470	C 17	ECKD1H471KB	D 1, 2	1SS53			(Power ON/OFF)
R 19	ERD25FJ8R2	C 4	ECEA50Z3R3	C 18	ECEA1CS330	D 3	OA90	JACKS		
R 20	ERD25FJ220	C 5	ECCD1H181K	C 19	ECEA0JS471	D 4	SM112	J 1	QJA0172	MIC Jack
VARIABLE RESISTOR		C 6	ECKD1H102KB	C 20	ECFDD562KAY	INTEGRATED CIRCUITS		J 2	RJJ19Y	MONITOR Jack
VR 1	EVJ56AT12C14 (with Screw)	C 7	ECKD1H101KB	C 21	ECEA50Z3R3	IC 1	BA313	J 3	QJA0149	DC IN Jack
		C 8	ECFDD683MXY	C 22	ECEA1ES331	IC 2	BA526			
		C 9	ECEA50Z3R3	C 23	ECKD1H102KB					
		C 10	ECCD1H470K	C 24	ECEA1ES331					
		C 11	ECEA50Z1	C 25	ECKD1H221KB					
		C 12	ECEA1AS471	C 26	ECKD1H331KB					

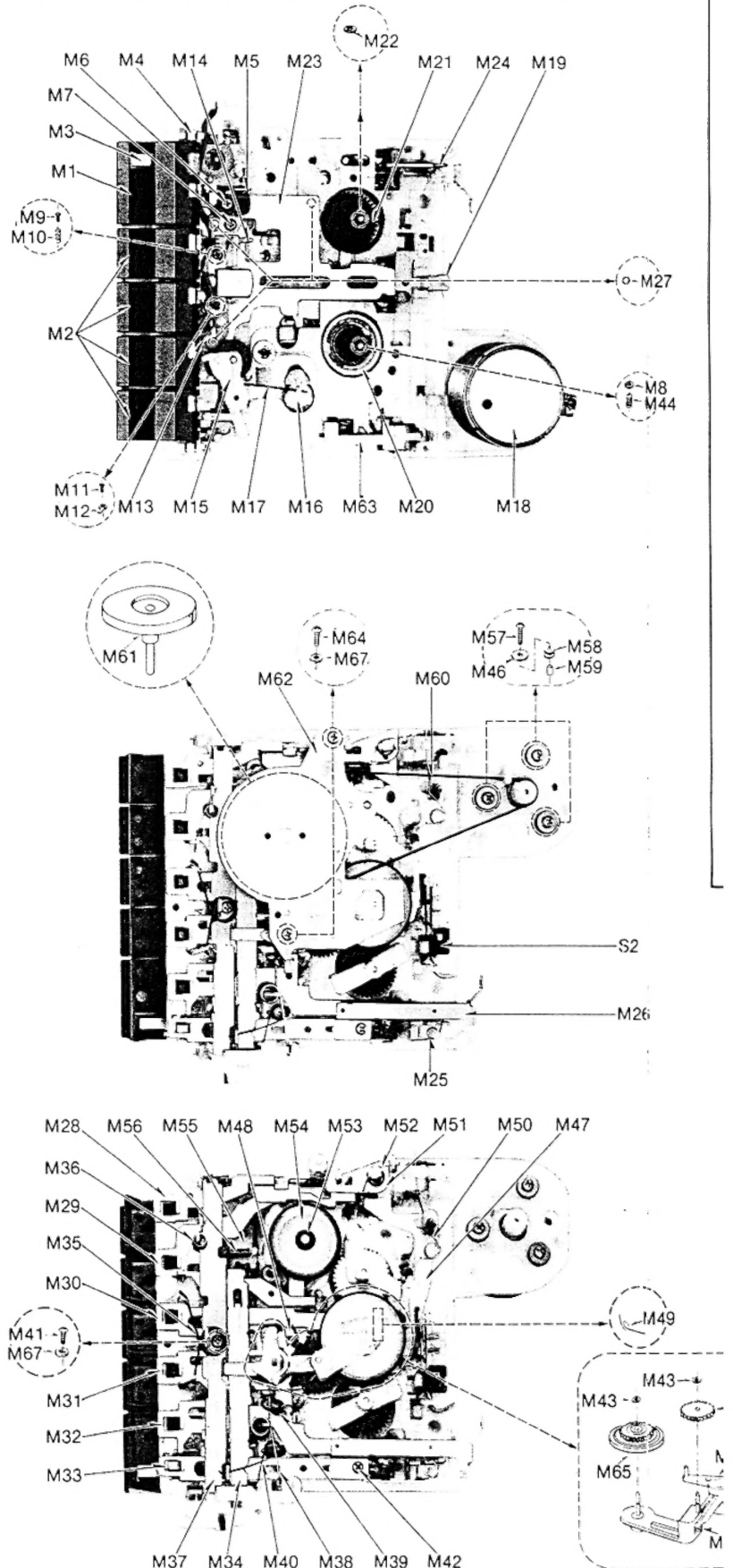
MECHANICAL PARTS LOCATION

REPLACEMENT PARTS LIST

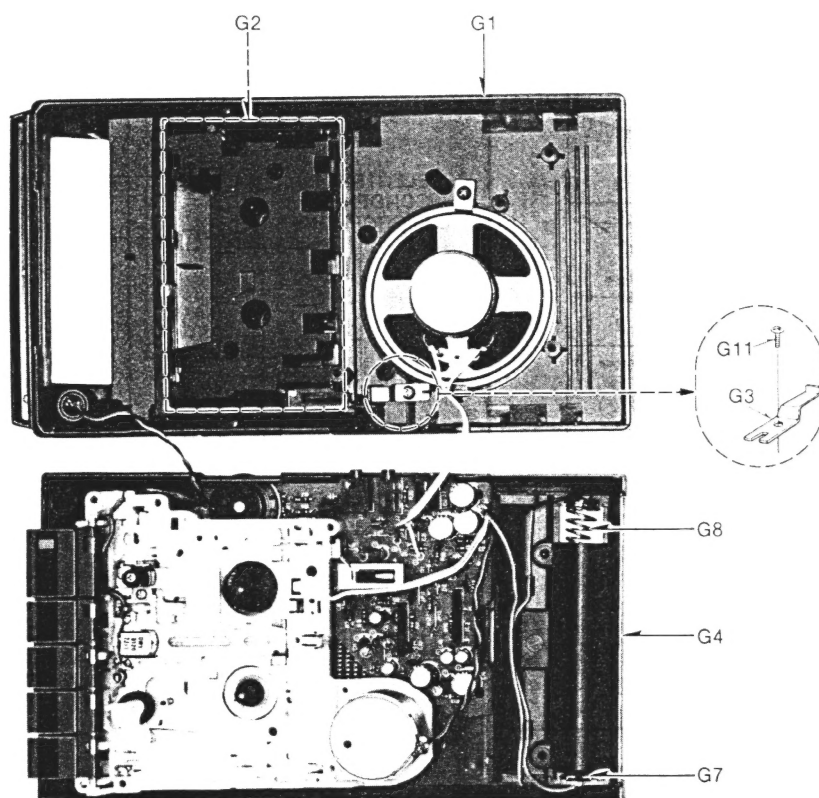
Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS		
M 1	QGO4R2204	Playback Button
M 2	QGO4R2203	Operation Button
M 3	QGO4R2205	Record Button
M 4	QMN4R2825	Button Shaft
M 5	QMG4R0123	Tape Guide
M 6	XTN26 + 8B	Screw $\varnothing 2.6 \times 8$
M 7	XSN26 + 3	Screw $\varnothing 2.6 \times 3$
M 8	QBW0042	Reel Table Washer
M 9	XSN2 + 6	Head Adjustment Screw
M 10	QBC4R1446	Head Adjustment Spring
M 11	XSN2 + 4	Screw $\varnothing 2 \times 4$
M 12	QJT0039	Lug Terminal
M 13	QBN4R1986	Pressure Roller Spring
M 14	QML4R4019	Auto-Stop Detection Lever
M 15	QXL4R1625	Pressure Roller Arm Assembly
M 16	QML4R4017	Idler Lever
M 17	QBN4R1988	Idler Spring
M 18	QXU4R0324	Motor Assembly
M 19	QBN4R1987	Cassette Retainer Spring
M 20	QXU4R0150	Takeup Reel Table Assembly
M 21	QDR4R1171	Supply Reel Table
M 22	QBW2008	Washer
M 23	QXK4R2753	Head Base Plate Assembly
M 24	QML4R4021	Erase Safety Lever
M 25	QBN4R1783	Erase Safety Lever Spring
M 26	QBP4R1990	Record Spring
M 27	QDK1012	Steel Ball 2.5 ϕ
M 28	QMR4R2089	Pause Rod
M 29	QMR4R2090	Stop/Eject Rod
M 30	QMR4R2091	Fast Forward/Cue Rod
M 31	QMR4R2092	Rewind/Review Rod
M 32	QMR4R2093	Playback Rod
M 33	QMR4R2094	Record Rod
M 34	QMR4R1783	Lock Rod
M 35	QBN4R1777	Fast Wind Rod Spring
M 36	QBN4R1709	Stop Rod Spring
M 37	QMF4R2085A	Rod Holding Plate
M 38	QBN4R1776	Playback Rod Spring
M 39	QBT4R1972D	Base Plate Retainer Spring
M 40	QBN4R1706A	Record Rod Spring
M 41	XTN26 + 8B	Screw $\varnothing 2.6 \times 8$
M 42	XTN26 + 4B	Screw $\varnothing 2.6 \times 4$
M 43	QBW2008	Snap Ring
M 44	QBC4R1447	Back Tension Spring
M 45	QXL4R1562	Fast Wind Frame Assembly
M 45-1	QBN4R1710	Fast Wind Lever Spring
M 46	XWA26B	Washer 2.6 ϕ
M 47	QML4R3531	Change Lever
M 48	QML4R4022	CUE Lever
M 49	QBN4R1712	Fast Forward Spring
M 50	QBN4R1701	Change Lever Spring
M 51	QML3528	Pause Lock Lever
M 52	QBN4R1705	Pause Lock Lever Spring
M 53	QBW2046	Snap Ring
M 54	QX14R0109	Idler Assembly
M 55	QMR4R1784	Auto-Stop Rod
M 56	QBT4R1889D	Auto-Stop Rod Spring
M 57	XSN26 + 8	Screw $\varnothing 2.6 \times 8$
M 58	QBG1420	Motor Cushion
M 59	QMC0079	Motor Coil
M 60	QDB4R0337	Flywheel Belt
M 61	QXF4R0216	Flywheel Assembly
M 62	QXH4R0429	Flywheel Holding Plate Assembly
M 63	QML4R4020	Cassette-up Lever
M 64	XTN26 + 10B	Screw $\varnothing 2.6 \times 10$
M 65	QXG4R1045	Fast Wind Pulley Assembly
M 66	QDG4R1193	Rewind Gear
M 67	XWG26	Washer 2.6 ϕ

SPECIFICATIONS

Pressure of pressure roller	420 \pm 60g
Takeup tension	50 \pm 15g-cm
Wow and flutter (JIS)	Less than 0.4% (RMS)
Tape speed accuracy	\pm 3%



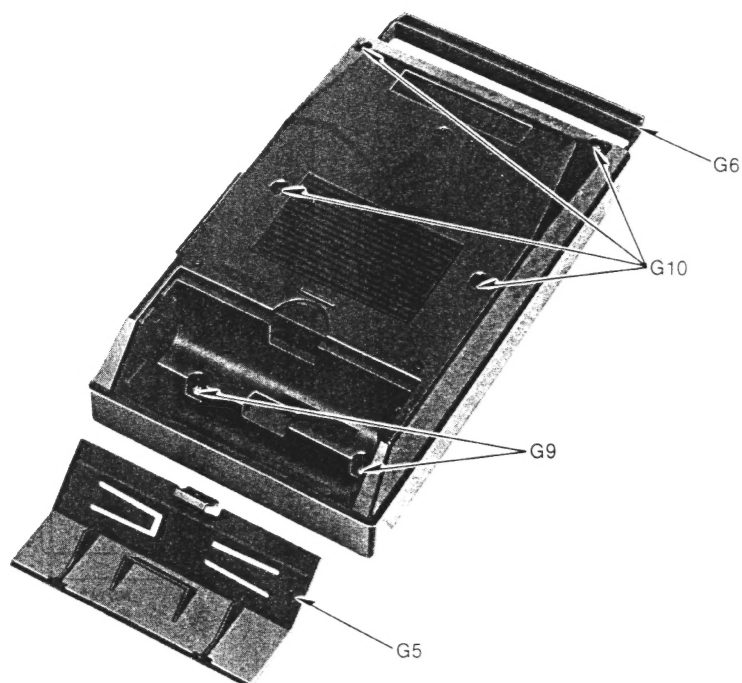
CABINET PARTS LOCATION



REPLACEMENT PARTS LIST

Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
CABINET PARTS		
G 1	QYM4R0884KW	Main Case Sub Assembly
G 2	OKF4R2128	Cassette Lid
G 3	QBP00074	Lid Spring
G 4	QKM4R1571	Bottom Case
G 5	QKD4R1216	Battery Lid
G 6	QKH4R1193	Handle
G 7	QJB0111	Battery Terminal
G 8	QBN8007	Battery Spring
G 9	XTN3 + 8B	Tapping Screw $\oplus 3 \times 8$
G 10	XTN3 + 30B	Tapping Screw $\oplus 3 \times 30$
G 11	XTN3 + 8B	Tapping Screw $\oplus 3 \times 8$
ACCESSORIES		
A 1	[P] Δ RP65XP [For U.S.A.]	AC Adaptor
	[C] Δ RP65XC [For Canada.]	AC Adaptor
A 2	[P] QQT4R3481 [For U.S.A.]	Instruction Book
	[C] QQT4R3482 [For Canada.]	Instruction Book
PACKINGS		
P 1	[P] QPN4R4459 [For U.S.A.]	Inner Carton
	[C] QPN4R4460 [For Canada.]	Inner Carton
P 2	QPA4R0732	Cushion
P 3	QPS4R0676	Pad
P 4	QPC4R0114	Poly Bag



M27

M8
M44

2

26

M49

